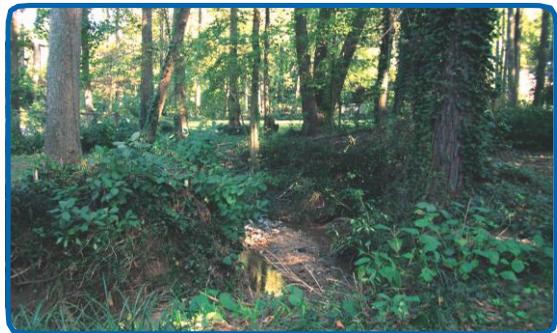




RECAP: HOW CAN I PROTECT BUFFER ZONES AND STREAM HEALTH ON MY PROPERTY?

- N**ever mow to the edge of a stream or lake; let the buffer develop naturally.
- P**lant appropriate native vegetation and cuttings in the buffer zone.
- D**on't dump anything in a stream, including grass clippings and other yard waste. Try home composting instead.
- K**eep the water body clean by removing trash.
- L**eave natural woody debris in a stream. It provides habitat and food for aquatic communities.
- U**se pesticides and fertilizers sparingly in your yard and not at all in the buffer.
- K**eep septic systems in good working order to prevent contaminated runoff.
- D**on't change the course of a stream or try to use rocks or other materials to stop stream bank erosion yourself. You can do more harm than good.



INCREASED PROPERTY VALUE

HOW DOES MAINTAINING OR IMPROVING A STREAM INCREASE PROPERTY VALUE?

Studies have shown that:

The appraisal value of houses with natural streams is three times higher than those with channelized streams.

The closer a property is to a natural area, the higher the value.

Sixty percent of suburban residents enjoy wildlife viewing and are willing to pay a higher price for properties that are attractive to wildlife.

WHO IS RESPONSIBLE FOR WHAT?

Every stream has two components: the water flowing in it and the land beneath and around it.

Private individuals own the land that forms the stream channel on their property. However, because it is considered a "public good," the water in the stream is owned by the State of Georgia, or all of us! This means that property owners can use the water, but not in ways that infringe on the rights of others.

What many property owners may not realize is that "using" water properly also depends on what they do on their land. If, for example, a landowner decides to armor the stream bank, culvert the stream in a pipe, remove natural bed materials or fill in a ravine, these land alterations can negatively affect:

- H**ow the stream water flows;
- W**hat the water contains;
- E**rosion rates downstream;
- T**he value of the property that was "protected" or "improved"; and
- W**hether the stream's inhabitants are healthy, or can even exist.

The landowner is ultimately responsible for any resulting changes downstream.

CONTACTS & REFERENCES

These are great places to start learning more!

GREEN INFRASTRUCTURE FOR SINGLE FAMILY RESIDENCES:

https://drive.google.com/file/d/1RsmhfASwRnxsj_CBjwhSMrFXhRB8YFxi/view

STREAM BUFFER STEWARDSHIP:

http://www.cwp.org/Resource_Library/Restoration_and_Watershed_Stewardship/residential.htm#factsheets

http://www.cobbswcd.org/images/reveg_guide_06.pdf

LAND DISTURBANCE PERMITS/ CODES & ORDINANCES:

<http://www.brookhavenga.gov/city-government/code-of-ordinances>

Always secure proper permits prior to beginning your project.

PLEASE PICK UP THAT DOG POOP!

WHAT SHOULD YOU DO WITH THE WASTE YOU PICK UP?

There is no perfect answer, but here are a couple options:

1. Flush it down the toilet.
2. Put it in a plastic bag and throw it in the garbage can (just make sure the bag doesn't have any holes and it is tied tightly.)



WHY SHOULD YOU PICK IT UP?

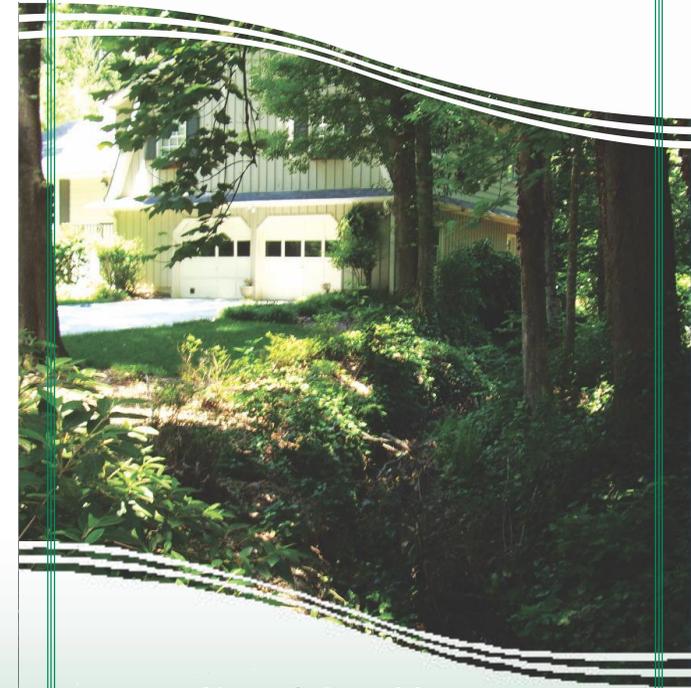
Pet waste left behind may be washed into waterways by rain. As the waste decays, it uses oxygen, releases excess nutrients that encourage weed and algae growth and, sometimes, carries disease-causing organisms, that make water unsafe for swimming or drinking.



Introduction to

Stream Buffer Management

What Can You Do to Care for Stream Buffers?



City of Brookhaven

Department of Public Works
Stormwater Division
4362 Peachtree Road
Brookhaven, Georgia 30319

404-637-0540

stormwater@brookhavenga.gov



BENEFITS OF STREAM BUFFERS

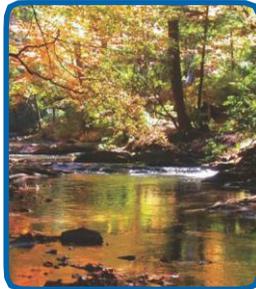
Do you know why stream buffers are so important? Stream buffers, also known as riparian buffers, are bands of vegetation bordering a body of water that play a crucial role in promoting public health by protecting water quality. The type of vegetation in the buffer depends upon the climate and buffers the stream from anything that flows into it – polluted water, eroding soil or toxic chemicals. Many fish species need cool water, and streamside vegetation provides shade to keep streams cool. Leaves falling into the stream provide food for insects that fish eat as well as places for fish to hide from predators. Roots help stabilize stream banks and keep dirt from washing into streams. Plants on stream banks also provide shelter for wildlife as they drink from waterways.

PLANNING AND CREATING A HEALTHY BUFFER ZONE

A minimum buffer width of 75' is required by the City of Brookhaven.

The buffer zone should be thought of in layers moving from the stream to the house and should be ordered: trees, shrubs, ground covers/grasses, then maintained lawn. It is helpful to sketch out a

design to determine how many plants are needed. You can start your plan by drawing where you would like to plant grasses, shrubs and trees, without worrying about the exact species at this stage. Consider the size (at maturity) of the plants you would prefer, however. Generally, you should plant ground covers 1-3' apart, shrubs 3-5' apart, small trees (up to 25' tall at maturity) 15' apart and larger trees 25' apart.



You will want to group some plants together to provide dense vegetation, better habitat and more storm water filtration at maturity. Some trees should be planted near the water's edge, but re-vegetation at the water's edge should be allowed to occur naturally. If you want to provide a path for access to the water, it should be as narrow as practical and covered with mulch or other porous material to minimize erosion.

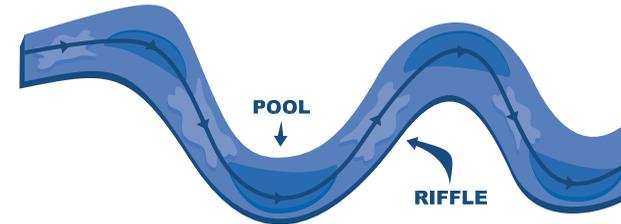
If you want to maintain a view of the water, you can create a "view corridor" of low growing vegetation in a selected area, while still maintaining an effective buffer.



HOW STREAMS WORK

In Brookhaven, undisturbed streams are composed of alternately spaced, deep and shallow areas called pools and riffles. Pools are deep areas that often contain fine materials such as sand, and these are a perfect resting spot for fish. Riffles are shallow, fast moving areas that often contain larger materials like cobbles and boulders. These areas provide important habitat for small aquatic animals and bugs, as well as areas for fish spawning. Another important component of streams is the floodplain. Active floodplains provide critical functions to the community and are essential for healthy streams because they:

- R**educe downstream flooding by storing excess storm water;
- R**educe pollution by allowing sediment, bacteria and fertilizers to settle out and be utilized by plants;
- R**echarge and filter groundwater so streams can maintain flow in dry weather; and
- R**educe stream bank erosion by relieving energy in the channel.

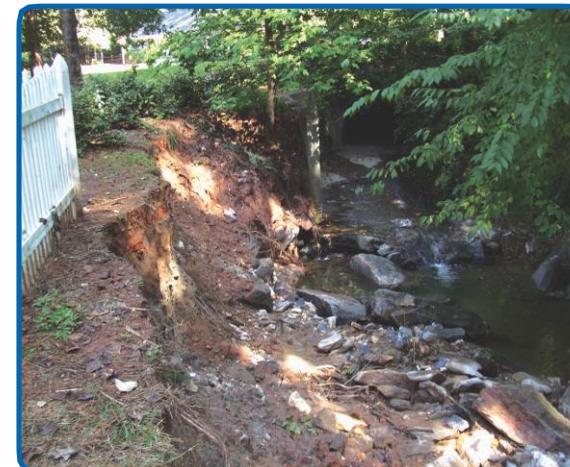


WHY DO STREAMS MEANDER?

It's a balancing act. All streams transport water along with bed materials like soil and rocks. By meandering, streams can balance the work involved in carrying the bed materials and the energy of transporting the water.

HOW MUCH WILL A STREAM MEANDER?

The size of the meander is related to the slope of the stream and the size of the watershed (area of land draining to the stream). Steep hillside streams hardly meander at all, while large rivers in flat valleys often have large meanders.



Buffer encroachment and bank erosion

WHAT HAPPENS WHEN A STREAM UN-MEANDERS?

Streams are not pipes. When we eliminate natural meanders in streams, and attempt to "nail" the stream into a straight line, the effects are often dramatic. Excessive energy often becomes trapped in the stream channel. Erosion increases as the stream attempts to recreate the missing meanders. Floodplains often become disconnected from the stream, and downstream landowners are at a greater risk of flooding and erosion.

IS STREAMBANK EROSION NATURAL?

Even streams in balance erode, but usually not in a way that degrades the stream. In a healthy stream, the amount of material eroded equals the amount of material deposited. If a stream begins to erode excessively, it may be out of balance. Increased stormwater runoff up-stream may start a downward cutting process, which leads to unstable, eroding streambanks.

PROFESSIONAL HELP

If your stream is already severely eroded and has vertical banks more than a couple of feet tall, your solution will likely involve expert guidance. Major work done improperly on a stream bank can make problems worse or violate local and state laws governing what may or may not be done in the buffer zone. Always contact Community Development (404-637-0500) and apply for necessary permits and, if necessary, submit work plans for review. The permitting program is inexpensive and proper procedures prevent fines from violations.

Find a qualified local civil engineering or landscaping design firm you feel comfortable with to assist in the process of assessing the issue, creating a sound solution, as well as obtaining the proper permitting and permission to complete drastic alterations to the stream bank.